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no. 22

ALTGELD HALL STACKS

The Solution of the Transportation Problem of the United States

Letter of
Mr. James J. Hill
to
Hon. John A. Johnson
Governor of Minnesota
Jan. 14, 1907.

AND

Fourteen Feet Through The Valley

An Informing Talk
by
Mr. Harry B. Hawes
Chairman of the Speakers' Committee of the Lakes-to-the-Gulf Deep Waterway Association

Before the
Engineers' Club of Saint Louis.

Issued by the
Lakes-to-the-Gulf Deep Waterway Association
William K. Kavanaugh, President William F. Saunders, Secretary
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The Transportation Problem of the United States.

Letter of Mr. James J. Hill to Hon. John A. Johnson, Governor of Minnesota, January 14, 1907.

St. Paul, Minn., January 14, 1907.

Honorable John A. Johnson,
Governor, St. Paul, Minnesota:

Dear Sir—The business of the United States is today so congested that from every portion of the country arises clamor for relief. The railroads everywhere are taxed beyond their power. The people of the United States, therefore, are face to face with the greatest business problem that has ever threatened the nation. During recent years the volume of business has increased and is increasing with extraordinary rapidity; while the necessary additional trackage and terminals have not been equal to the demands upon them. The resulting situation is a freight blockade of enormous proportions, especially at all terminal points. How to remedy this is a problem, financial, mechanical and physical. No time should be lost in applying such measures of remedy as may be possible. And the first step toward this is to reach a proper understanding of actually existing conditions. The following figures, compiled from the official reports of the Interstate Commerce Commission, and covering the growth of the railroad business for the last ten years, exhibit the significant facts:

	1895	1905	Inc. Per Ct.
Total single track mileage	180,657	218,101.	21
Locomotives	35,699	48,357	35
Passenger cars	33,112	40,713	23
Freight cars	1,196,119	1,731,409	45
Passenger mileage	12,188,446,271	23,800,149,436	95
Freight ton mileage	85,227,515,891	186,463,109,510	118

These figures show the cause of delay in the national traffic movement which threatens to bring industry to a standstill. Within the last ten years the volume of railroad business in this country has increased over one hundred and ten per cent. Meanwhile, the railroads have endeavored to meet it. For, while the increase in locomotives has been thirty-five per cent in number, and, in freight cars of all classes, forty-five per cent, the substitution of larger cars for smaller, better methods of loading and increase in weight of locomotives, have greatly added to the carrying capacity of the railroads so far as rolling stock is concerned. Moreover, equipment is being increased as rapidly as capital and labor can do it. The car manufacturing establishments of the country have all the orders they can fill for a year ahead. The locomotive works are equally busy. There are and will be cars enough to carry the country's traffic if the cars can be moved, but engines and cars must have tracks upon which they may run.

A striking tale is told by the statistics of railroad building in the United States. Not only is it true, as stated above, that there has been in the ten years ending 1904, an increase of but twenty-one per cent in mileage, but the most impressive fact is that railroad building has, within a generation, fallen off just as the demand upon trackage has increased. At this moment, when that demand is greatest and the whole country is clamoring for relief, it is the smallest in years. These are the figures:

	Total Mileage.	Inc.	Inc. Per Ct.	Inc. Per Ct. Per Annum.
1870	52,898	......	.....	....
1880	93,671	40,773	77.	7.7
1890	163,597	69,926	74.6	7.46
1904	213,904	50,307	30.75	2.19
1906, Estimated	220,000	6,250	2.9	1.45

The limit of service of a common carrier has been reached when it has moving at all times over its system as many cars as can be run upon its tracks with safety, and transferred and dispatched from its terminals and junction points without unreasonable relay. Beyond that point, increase of business cannot be handled by increasing cars and engines. The disparity between the growth of traffic and the additions to railroad mileage, and the extension of terminals shown by new mileage of less than one and one-half per cent a year since 1904, to take care of a traffic increase averaging eleven per cent a year for ten years past, presents and explains the real problem. The best judgment of many conservative railroad men in the country is that an immediate addition of not less than five per cent per annum to the railroad trackage of the country for, say, five years, should be made to relieve the situation and put an end to unreasonable delays in the transaction of business.

Investigations recently made by public officials, and facts accessible before those investigations, disclose that the railroads of the country have been endeavoring to meet the growing demand upon them. In order to handle this enormous addition of one hundred and ten per cent in business with only twenty-one per cent more track, they have utilized as never before the carrying capacity of each mile. Not only were there thirty-five per cent more locomotives and forty-five per cent more cars in service in 1905 than in 1895, but each engine and car did much more work. The passenger miles traveled per locomotive increased from 1,218,967 to 2,043,553, or more than sixty-eight per cent, and the ton miles per freight locomotive from 4,258,821 to 6,690,700, or more than fifty-seven per cent. Trains run faster, cars are larger, locomotives are more powerful, and methods of handling the business have so improved as to increase the general efficiency. Only by these improvements has the disparity between trackage and business done been prevented thus far from creating widespread suffering and loss. Only thus has the country been enabled to do a growing work with an almost stationary machine.

But the trouble of business grows and deepens. It is not confined to any section of the country. And it is in the great centers that the inadequacy of terminal facilities makes the pressure most severe and prevents the free flow of traffic. The Great Northern Railway Company has thirty-four switch engines in use in the Twin Cities while it uses only twenty-eight engines in hauling freight into and out of the same.

No additions to equipment and no increased efficiency in operation can take the place of the imperatively required new trackage and terminal facilities. The country must have, as rapidly as they can be built, additional tracks and terminal facilities, of which it stands in such need today. Suppose that only twenty-five per cent additional track with necessary terminals and equipment is to be built during the next five years; for with less the country cannot escape severe distress and business depression, cannot conduct promptly the volume of business even now in sight. Our total railroad mileage is about 220,000 miles. A twenty-five per cent increase would mean the building of 55,000 miles of new track, much of which would be additional tracks to existing lines; and if five years were allowed for the work it would be necessary to build 11,000 miles each year. But that is not all. One-third would have to be added to this amount for terminal and passing tracks. Add thirty-three per cent to 55,000 miles, and the total is 73,333 miles; or, say, before the end of five years, in round numbers, 75,000 miles of track as the requirement for the country to meet immediate needs. As most of this additional track would be built where traffic is heaviest, for double-tracking existing lines, it must be expensive work. Grades should be lowered, curvature reduced and highway and other bridges built and expensive terminals created.

No practical man would accept a contract for furnishing the facilities required, including additional equipment and terminal facilities, for less than $75,000 per mile. The question of terminals alone is almost prohibitive. Terminals now in use were acquired when property was cheap, and can be enlarged only by heavy outlay. In many cities it is not even a question of cost, since the area necessary to handle railroad business properly is not to be had at any price; does not exist within the business section where terminals must be located, unless the business itself were destroyed to make room. The new work, then, would amount to $5,500,000,000 in round numbers, or a yearly average of $1,100,000,000. That is the sum which should be spent before the commerce of the country can be moved properly. It is just twice the total amount of the bonded debt of the United States after the close of the Civil War. It is more than twice the entire currency in circulation in the country, and only a little less than twice the deposits in all the savings banks in the United States put together. That is the money that should be raised somehow, and that within the next five years if the business of the country is to escape prostration.

Almost all the complaints made today, either by shippers or by operating railroad men, of obstacles and dangers in transportation service are due to deficient trackage. The defect can be corrected only by building more track. The movement of freight cars is more unsatisfactory to the railroads than it can be to their customers. The average speed of a freight train is from twelve to fifteen miles per hour. The average distance traveled by each freight car is about twenty-five miles per day. That is, the entire freight equipment of the country is employed to the fair limit of its capacity but two hours out of the twenty-four. On single track lines freights must wait on sidings while passenger trains have the right of way; cars stand for days or weeks in yards, or at transfer points awaiting their turn.

The Lakes-to-the-Gulf Deep Waterway Association

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JAS. J. HILL, OF ST. PAUL

ST. LOUIS, February 11th, 1908.

Colonel John A. Ockerson,
Mississippi River Commission,
Liggett Building,
St. Louis, Missouri.

Dear Colonel Ockerson: -

On page four of this pamphlet Mr. James J. Hill in his famous letter to Governor John A. Johnson, of Minnesota, says, -

"The movement of freight cars is more unsatisfactory to the railroads than it can be to their customers. The average speed of a freight train is from twelve to fifteen miles per hour. The average distance traveled by each freight car is about twenty-five miles per day. That is, the entire freight equipment of the country is employed to the fair limit of its capacity but two hours out of the twenty-four. On single track lines freights must wait on sidings while passenger trains have the right of way; cars stand for days or weeks in yards, or at transfer points awaiting their turn."

This amply justifies the statement you made the other night and in fact is even stronger. I send you the pamphlet in another envelope.

Very truly yours,

W. F. Saunders

Secretary.

It has come to pass also that the inadequacy of trackage takes heavy toll of life and limb. In 1895 the number of passenger miles traveled for every passenger killed or injured was 4,789,173; in 1905 it was 2,184,830. The ton mileage for each non-passenger killed or injured was 2,278,438 in 1895 and 2,201,011 in 1905. Yet during this time cars were being equipped everywhere with safety devices, and all the railroads were exhausting ingenuity in guarding against accident. The terrible increase of casualties in proportion to passenger and freight mileage is part of the price the public pays for crowding business so that it can be moved only at some sacrifice of safety. The situation appeals to all the traveling public as well as to every shipper and to every man connected with the operation of railroads in this country.

Our population is now increasing at the rate of more than 2,000,000 per annum, and the growth will soon be 2,500,000. The demand upon the transportation systems of the country grows accordingly. Almost everything that ministers to human necessity, except such products of the farm as are consumed on the farm, must be carried by the railroad for a longer or shorter distance. The total value of farm products themselves doubled in the thirty years after 1870, and is now estimated at almost twice the figures of five years ago. In the last ten years the output of petroleum has more than doubled, that of pig iron increased 150 per cent, and the value of manufactured products of the country rose from $9,372,437,283 in 1890 to $13,039,279,566 in 1900. All the additions to our imports and exports, every activity in every department of industry, means just so much more work for the carrier systems of the country. And they, as to available trackage, are little better than at a standstill. For of the four or five thousand miles that are built in a year, the greater part consists of feeders for main lines and of roads pushed into new country for the purpose of opening it up. Neither will give relief to main thoroughfares or lighten the pressure on terminals. Both, on the contrary, add to the seriousness of the situation by creating more business for the overcrowded lines to handle.

The pressure of traffic increases in a constant progression. It has reached its greatest severity just at the time when railroad construction is at the lowest ebb. Take the last five years, within which business has been flourishing everywhere. The rise of new industries and the expansion of old ones, the development of the country as measured by the increased business of the postal department, all indicate the volume of the burden placed upon the railroads. The following figures, compiled from Poor's Manual of Railroads, show the intense activity of the last five years as compared with the decline in railroad construction:

	1900	1905	Inc. Per Ct.
Miles of railroad operated	191,861	215,506	12.3
Passenger mileage	16,313,284,471	23,906,420,668	46.5
Freight mileage	141,162,109,413	187,375,621,537	32.7

The number of passenger miles traveled in this country for each mile of railroad in it, according to these figures, has increased thirty per cent in the five years, and the number of ton miles for each mile of track has grown eighteen per cent. As these percentages are calculated on the actual number of miles of road existing at the beginning and the end of the period respectively, they measure the additional burden on every foot of track. It is no wonder that, with this extra work to do per mile, a work not equally distributed, but in some sections rising to a far higher ratio, the limit of effective operation has been reached. The highest direction and the best economy is to have trackage, equipment and other facilities properly adjusted to the volume of business and then keep moving it in a harmonious and useful way. To any such system, by which alone present distress can be relieved and future disaster averted, more trackage is the first and most indispensable condition.

The problem and the necessity are enormous. At 140 tons to the mile, it would require 2,000,000 tons of steel rails every year to furnish the 15,000 miles of track required. This is nearly two-thirds of the product of all the rolling mills in the United States. It would call for the labor of 200,000 men in grading, besides track layers, bridge builders and others. Labor even for such ordinary extensions and improvements as are now being made is not to be had in sufficient quantities on any terms. And it demands, as has been seen, the investment in permanent railroad plant of $1,100,000,000 a year for five years to provide the railroads of the country with means to handle properly the business already in sight, not allowing for future growth. This is the real railroad problem of the United States; and it is one which people have been singularly slow to perceive and reluctant to realize, although it is written on every page of industrial statistics and calls to the passer-by from every signal tower, every siding and every railroad yard from the Atlantic to the Pacific. To all appearances, the commerce of the country has touched a barrier which is almost insurmountable.

Two remedies must be found. The prohibitory expense now attached to enlargement of terminals at many points, and the absolute lack of available space at any price, may be met by a decentralization of traffic. There must be more points for export, more interior markets. A fifteen foot canal or channel from St. Louis to New Orleans would go farther to relieve the entire Middle West and Southwest than any other work that could be undertaken. With such a depth of water, a single powerful tow-boat would carry from thirty to forty train-loads. Terminal troubles admit of a more general diffusion of business, permitting transfers to take place and forwarding to be done where land can be secured in adequate quantities and at more reasonable prices. To this the traffic system of the country must be adjusted. The heavy transfers must be made away from the larger cities.

The construction account, however, is the first consideration. It is not by accident that railroad building has declined to its lowest within a generation, at the very time when all other forms of activity have been growing most rapidly. The investor declines to put his money into enterprises under ban of unpopularity, and even threatened by individuals and political parties with confiscation or transfer to the State. The withdrawal of capital from this field is one of the bottom causes of the great decline in railroad building at the very time when the growth of the country in other respects has been most marked. There has been no time since 1893 when there was more difficulty in raising money for railroad purposes than at present. This feeling must be removed and greater confidence be mutually established if any considerable portion of the vast sum necessary is to be available for the work.

First, there must be a realization by the country of the embargo upon business and of the fact that the cause is insufficient railroad trackage. This fact has, strangely enough, come upon the public by surprise. Even now, and even among those who should be most alert and best informed, there is little apparent comprehension of the desperate need that business already feels and that is expressed in delayed freight, car shortages and all the discomforts and injuries voiced by the complaints of shippers. Then there must be a fair, intelligent and loyal co-operation on the part of the whole people in what is for them a vital movement to make traffic facilities equal to traffic demands. Nothing compares with this in magnitude or importance since the close of the War of the Rebellion. It will take time, patience and the expenditure of an enormous amount of money. The task of providing even modestly for the future is a colossal one. It not only involves gigantic physical and financial operations, but it is conditioned upon a rational, just and patriotic attitude upon the part of the whole people. It will require the best thought and the best effort of this generation to avert the evil that now casts its shadow upon farmer, manufacturer and merchant; to arrest the progress of the paralysis that is laying its grip upon the heart of commerce and to restore the wholesome circulation without which there cannot be life and growth in either individual or the commonwealth.

Very respectfully,

JAS. J. HILL.

"Fourteen Feet Through the Valley."

A Talk by Mr. Harry B. Hawes, Chairman of the Speakers' Committee of the Lakes-to-the-Gulf Deep Waterway Association, Before the Engineers' Club of St. Louis.

"Fourteen Feet Through the Valley" means a fourteen-foot waterway from the Great Lakes to the Gulf.

It means increased facilities for transporting freight and the consequent saving of hundreds of millions of dollars to both producers and consumers.

It means a natural, God-made regulator of freight rates for the entire country.

It means the increased value of land and its products for the Mississippi Valley, by securing new markets and more direct transportation at cheapened cost.

It means immediate facilities for trade with the Orient and South American Republics, which will place the people of the Mississippi Valley on a competing basis with the Atlantic and Pacific Seaboard States.

It means the reduction of the transportation tax which is paid by all our people.

It means that St. Louis will become the greatest inland city in the world.

THE VALLEY.

Our portion of the Valley spreads broadly between two mountain chains, rising gradually as we travel north, less than 1,000 feet in 1,000 miles.

With a temperate climate, it forms the most wonderful territory in the world; with natural resources unsurpassed, it is only beginning to develop by the arts of man.

A competent authority has, perhaps, summed up its physical perfections in saying that it can support from 400,000,000 to 500,000,000 people and carry on trade with as many more when it has reached the Old World density of population.

Water-power is today the greatest of its undeveloped resources.

Through its center for a distance of 3,160 miles, flows the Mississippi River, whose great eastern tributary, the Ohio, reaches a distance of 975 miles to the Alleghenies, and the Missouri extends west to the Rockies, a distance of 2,575 miles.

It will test your patience and confuse you to name all the navigable rivers emptying into the great trunk stream. It will suffice to say that in the Valley 15,000 miles of navigable streams exist.

Each navigable stream means a transportation highway; each new highway will help just so much to remove freight congestion and lower the cost of its moving.

FREIGHT CONGESTION.

Mr. James J. Hill, the railroad expert, has said that in the last ten years the growth in ton mileage was 110 per cent, whereas the growth of railroad mileage in the same period to handle the traffic was only 20 per cent. Continuing, he said:

> "The traffic of the country is congested beyond imagination. The commerce of the country is paralyzed, and, continued, it means slow death.
>
> "More cars. Yes; we need more cars, but we need also cars of greater capacity, heavier trains, and more miles of railroad to haul them over. In ten years the railroads of the country expanded 20 per cent for the handling of a business that increased 110 per cent. Suppose you are able in the near future, to increase that expansion 50 per cent? That will still leave 40 per cent a year of the business without any facilities for taking care of it.
>
> "It is estimated that from 115,000 to 120,000 miles of track must be built at once to take care of this immense business. But to build that amount will cost as much as the Civil War cost, at least. It will cost from $4,000,000,000 to $5,000,000,000. A thousand millions of dollars a year for five years will scarcely suffice. Why, there is not money enough nor rails enough in all the world to do this thing!
>
> "And if the rails were piled up ready for the undertaking, and if the money were in bank today, it would be impossible to get the labor with which to do it.
>
> "I tell you, there is no question, since the Civil War, of half the consequence of this one. Why, you can't go out and contract with any railroad in this country to move 500 cars of freight from here to New York in thirty days. And the railroad could not deliver if it should contract to do it.

> "The great cry is that there are not cars enough. The trouble is that you can't put cars on the track and get half the movement out of them that you could ten years ago. Statistics show that freight cars running from twelve to fifteen miles an hour average a movement of twenty-five miles in twenty-four hours. Think of it—only *two* hours a day in operation! Is there any business in the world that can sustain itself when its equipment is in use only one-twelfth of the time?"

Such facts and figures coming from such well-accepted authority astound us.

This congestion, which paralyzes trade and affects the pockets of all, can be removed by a proper regulation of our waterways.

We have in the Mississippi Valley 15,000 miles of natural waterways requiring regulation alone to become serviceable for this purpose.

WHO IS RESPONSIBLE.

The natural questions, then, are: Why have they not been regulated, and who is primarily responsible for such apparent, almost criminal neglect?

First, there has been a lack of intelligent, persistent and systematic effort upon the part of business men in educating the people to the possibilities and benefits of this work.

Second, the transportation question has not been, until recently, understood to affect every man alike in all walks of life; the average citizen did not know that he paid a transportation tax and that he had some voice in the regulation of rates and in stopping discriminating rebates.

Third, Congress, which is ready and willing to follow an enlightened public sentiment in favor of any great public enterprise, has refused to make adequate appropriations necessary for this purpose in the absence of clearly expressed public sentiment favoring it.

This leads us finally to place the blame where it properly belongs, not upon the National Government but upon our people for not making a determined demand, backed by a compelling public sentiment favoring necessary appropriations for river regulation.

At present there is no party politics in the demand for an adequate appropriation, there should not even be a sectional question raised; for, while the Mississippi Valley will make the demand, second thought will lead the whole nation to believe that it is a national, not a sectional, issue.

While we know that the question is national, and will avoid a sectional issue, if possible, yet, if it must come, certainly we feel assured that a properly expressed demand made upon Congress by our representatives from the Mississippi Valley will not fail.

After public sentiment is aroused and an intelligent plan proposed, we will soon learn to pick our friends from our opponents; we can then both reward and punish without injustice.

A SPECIAL PLAN.

It is not enough that a general plan of deep waterways and the improvement and regulation of navigable streams should be advocated, but some special, exact and detailed plan must be presented first to the people and then to Congress.

Acting on this theory, an organization was formed in St. Louis last month, having for its object a specific plan, a fourteen-foot channel from Lake Michigan through the Mississippi River to the Gulf. This is intended only as a trunk waterway, and is in no sense of the word antagonistic, but, on the contrary, upon completion, will be the strongest argument in favor of the regulation of all the tributaries of the Mississippi. Just as it would be unwise to attempt to build artificial waterway tributaries first and the trunk last, or attempt to build tributaries of a railroad first and the trunk line last, so it would be the height of folly not to concentrate, at least for the time being, on the trunk waterway. Our engineers, as well as Congress, must have some definite plan. We now have that definite plan, and it will be but a short time before all of its advantages will become known.

THE DIVIDE REMOVED.

Scientists tell us that at one time the opening of the Great Lakes was to the south, and that Lake Michigan spilled its surplus water into the Mississippi River. Nature, for some cause, changed the course of this outlet so that this water now flows through the Niagara.

When Joliet, in 1673, reached the Chicago divide from the lakeside, he was shown by his Indian guide how to portage and take the river route to the great sea. He probably was the first white man to suggest the Lakes to the Gulf waterway.

When nature changed the outlet of the Great Lakes, she added greatly to the picturesqueness of our country by the creation of Niagara Falls, but she closed the old channel by a rock obstruction only thirty feet higher than the present outlet. The City of Chicago, at a cost of $50,000,000.00, has again opened the old channel by cutting away the divide and letting the water of the lakes flow into the Illinois and from thence to the Mississippi, so that a number of pleasure parties have started from Gulf ports, skirted the Gulf shore, rounded Florida, followed the coast line of the Atlantic, through the Great Lakes, down the Illinois to the Mississippi, and stopped to visit us at St. Louis on their way to New Orleans.

Chicago now proposes to give its ship canal, which it secured at a cost of $50,000,000.00, to the National Government, provided the Government will complete the work from Lockport to the Mississippi. The present Congress will be asked for an appropriation of $3,000,000.00 to complete the channel from Lockport to Joliet, and the estimate of the remaining cost of a fourteen-foot ship canal from Chicago to St. Louis is $32,000,000.00.

It is believed that the work can be completed in ten years, and be finished before the completion of the Panama Canal.

NOT A NEW PROJECT.

This is not a new project. In 1808 Albert Gallatin, then Secretary of the Treasury, in a report to Congress, advocated the construction of a ship canal across the divide along exactly the same line as that adopted by the City of Chicago. It has been overshadowed, however, by questions seemingly of more immediate concern. Conditions have changed, and today the paramount question before the American people is undoubtedly that of transportation. The leaders of both political parties are demanding that something be done. The intelligent thought of the nation is directed to a solution of this question, and, naturally enough, water transportation is, for the first time, receiving that consideration which its importance justifies.

IN EUROPE.

An examination of the subject has taken some of our experts to Europe, where they find that Holland, Belgium, France and Germany have a waterway development of 18,920 miles in a land area of 559,000 square miles, or one mile of waterway for each twenty-three and one-fifth square miles of territory. France has about one mile to twenty-six square miles, and Germany one to twenty-nine, and still expanding, while Holland and Belgium together have one mile of waterway to each six miles of territory.

We find the Mississippi Valley has 1,725,000 square miles, and 15,000 miles of natural waterways capable of being expanded as development requires to 25,000 miles, all at the present time neglected by the Government, of practically little use to our people and the cause of millions of dollars of damages to our Southern planters by reason of overflows and floods.

In 1896 Mr. Burton, Chairman of the House Committee on Rivers and Harbors, said the United States had expended, since the formation of the Government, for rivers, harbors and waterways of every description, a little over $273,000,000.00, while France had, in eighty years, expended for the same purposes, $706,000,000.00. And yet a single State of this Union has a larger area than all France.

France has nearly 2,500 miles of waterway and 3,000 miles of canals. Germany has 10,000 miles of navigable waterways, with about 3,000 miles of canals. The British Isles have 8,000 miles of canals, four of these alone costing $377,000,000.00. Even Ireland has 16 waterways covering a distance of 749 miles.

WHY ALL VALLEY STREAMS MEET NEAR ST. LOUIS.

Mr. Cooley, in discussing our proposed waterway, calls attention to a significant feature of the Valley of especial interest to St. Louis:

> "In the extension of low levels well north in the geographical heart of latitude 42°, between meridians 87 and 92, Illinois is the lowest State north of the Gulf margin, having an average altitude of only 632 feet above sea level; being 100 feet lower than Indiana, 300 feet lower than Michigan, 450 feet lower than Wisconsin, 500 feet lower than Iowa and 200 feet lower than Missouri; lower even than Arkansas, Kentucky and Tennessee. This might have been inferred, for all the waters gravitate to her shores. The Missouri, the Upper Mississippi, the Wabash, the Ohio, the Cumberland and the Tennessee, and all the water routes from the north land and the Great Lakes touch her borders. Such a condition carries a mild climate, well north, and makes possible navigation in ordinary winters up to latitude 40° at Chicago and Clinton."

U. S. ENGINEERS APPROVE.

It is not necessary for me to go into the engineering features of the Fourteen Feet Through the Valley. In 1904 the Mississippi River Commission, at the head of which was Gen. O. H. Ernst, and a Board of United States Engineers, consisting of Gen. Ernst, Lieut.-Col. Bixby and Major Thos. L. Casey, were authorized by Congress to make a survey of the proposed fourteen-foot waterway from Lake Michigan to St. Louis, and Congress appropriated $200,000 to pay the expense of a survey. The survey was finished and the report of the Board of Engineers and the Mississippi River Commission was made jointly to Congress under date of December 19th, 1905, and printed as House Document No. 263. The report goes into complete detail, and is most interesting. The finding of the two boards is that the proposed fourteen-foot waterway is entirely feasible, and that its cost will be in round numbers thirty-one million dollars. I hope that all of those who are interested in this matter will get this report and read it. It completely brushes aside the statements which have been made by those who look askance at the fourteen-foot waterway to the effect that the waterway is disapproved by engineering authorities.

The fact is that no engineering authorities have reported against the feasibility or practicability of this fourteen-foot waterway. In 1906, it is true, five United States Army Engineers came out to St. Louis on the request of Chairman Theodore E. Burton, of the Rivers and Harbors Committee—himself opposed to the building of this waterway—and undertook to pass upon the commercial necessity of a fourteen-foot waterway between Chicago and St. Louis. They tried to find out how many tons of freight passed between Chicago and St. Louis, and made a report in December, 1906, to Chairman Burton, estimating this quantity of freight, and saying, that in their opinion the traffic between Chicago and St. Louis by the proposed canal would not justify the expenditure by the United States Government of thirty-one million dollars. These engineers, however, were careful to say that they approved entirely the report of the first Board of Engineers as to the feasibility and practicability of the fourteen-foot waterway between Chicago and St. Louis, and agreed with their estimates, and with those of the Mississippi River Commission as to the cost.

MR. BURTON'S SUPPRESSION OF FACT.

Chairman Burton has somewhat unworthily used this report of this second Board of Engineers in a very uncandid way to create the impression that the United States Engineers had reported that the proposed fourteen-foot waterway was not practicable, and has, in answer to requests for information from constituents of his, answered them in an effort to create this impression. The following letter will show how Mr. Burton goes about this disingenuous attempt to mislead people who have a right to ask him for entire truth. The letter is addressed to a business man of Mr. Burton's own town, who wrote to him asking him to support the building of the deep waterway:

"I have your valued favor of the 31st ult., relating to the construction of a deep sea waterway from the lakes to the Gulf. I should be glad to hear from you in regard to the probable use which would be made of this waterway. It should be stated that the Board of Engineers, which has considered the project, has reported unfavorably, though advocating one of less depth, perhaps eight feet. The project is for fourteen."

It is plain to any fair man that Mr. Burton intended here to make his correspondent believe that the United States Engineers had reported unfavorably against the fourteen-foot waterway, suppressing the fact that the first and the important Board of United States Engineers had reported most favorably upon the enterprise.

THE LAKE LEVEL SCARE.

Some persons, who, for one reason or another, are opposing the building of the deep waterway between the lakes and the Gulf, are making much of the suggestion that drawing water from Lake Michigan for the deep waterway will lower the level of the lake so as to make it interfere with navigation. This is a plain absurdity which will not be accepted by people of common sense, and the statement is disproved by an investigation of the matter which has been made by United States engineers, particularly by Brigadier-General O. H. Ernst, of the United States Corps of Engineers. General Ernst is regarded as an authority upon the subject, and is accepted as an authority by the Rivers and Harbors Congress. In a report upon this subject made by General Ernst and his colleages, Colonel W. L. Bixby and Major Thos. L. Casey, and sent to the Rivers and Harbors Committee under date of December 19th, 1905, the following statement is made:

"The effect upon the level of Lake Michigan of withdrawing 10,000 cubic feet per second for an indefinite period has been the subject of an elaborate investigation under the office of the Lake Survey of Detroit, and the conclusion reached is that the final effect will be to lower the level about six inches. Oscillation of more than six inches in the level of the lake's surface are very common, often occurring hourly for many hours in succession, while oscillations of two or three feet within a year or series of years occur, all from natural causes. A permanent average lowering of six inches, therefore, is not easily observed, and will not probably be noticed by navigators."

It is estimated by the United States Engineers that the 10,000 cubic feet per second alluded to here is the maximum that will be needed for the fourteen-foot waterway, and engineers who have gone further into the subject say that 6,000 cubic feet per second is all that will be needed to make the fourteen-foot waterway.

Upon this report of the engineers, Chicago has this year got authority from the International Waterways Commission to draw 10,000 cubic feet of water from Lake Michigan for its sanitary course. This effectually disposes of the whole objection.

RAILROADS NOT HOSTILE.

It has usually been supposed, and may probably be true, that the great influence which railroads have unfortunately exerted upon our national law-making body has been hostile to large appropriations for the river. The expressions now given by leading railroad men exhibit a more liberal view, and we find no apparent hostility. This is due to the fact that railroad service, as at present constituted, is totally incapable of promptly moving our great crops and heavy freight at certain seasons of the year, resulting in a congestion entailing enormous loss to the farmer as well as to the manufacturer and consumer. It is interestingly said that:

> "Some 35 per cent of the freight moved by the railways of the United States, bituminous coal and other minerals, are worth less than one dollar per ton where produced; 17 per cent anthracite coal, coke, iron ore and other products, are worth less than two dollars, and still another 12 per cent coarse manufactures, like brick, cement and lime and wood, logs, etc., are worth less than five dollars per ton. The consumer has only to consult his purchase price to know that railway transportation is by far the largest element in the cost of more than half the commodities that seek a market."

It will be freight of this kind that will be largely handled by water transportation. The railroads will have their monopoly of fast transportation, the connection between waterways and the haul to the waterways. They will, therefore, probably be content with this share of the business, especially as it will carry with it the transportation of all perishable goods and passengers.

Remembering what Mr. Hill has said, there seems to be no great reason why railroad influences at Washington should be antagonistic.

RAILROAD REGULATION.

It is true, though, that railroad regulation will mean rate regulation, and the competition will hurt.

Mr. M. C. Markham, traffic expert, showing the influence of the Mississippi River on railroad rates, said:

> "The river, as can be readily understood, makes the rate from St. Louis to New Orleans. The railroads running between those points, to get a share of the traffic, must necessarily offer rates approximating those of the river craft. Chicago is not situated upon the river, but it would be put to a disadvantage as regards the Memphis or New Orleans trade if it were not put upon a relatively fair rate plane with St. Louis.
>
> "By way of illustration: When the rate on wheat from St. Louis to New Orleans by river was 30.6 cents per bushel, it was 70.2 cents per bushel by rail from St. Louis to New York. In thirty-five years the river rate fell from 30.6 cents to 4.25 cents per bushel to New Orleans, and the rate by rail to New York followed it down from 70.2 cents to 11.6 cents."

It is scarcely necessary to give illustrations of this kind. Competition means reduction in price as well in transportation as in trade.

The average cost of carrying a ton of freight, in 1904, by rail, was 7.8 mills per mile. This was the average, but on the Illinois Central, which parallels in many places the Mississippi River, the rate was 6 mills per ton per mile.

The cost of transporting freight on the Ohio River was .76 of one mill per ton per mile.

The cost of transporting freight from Cairo to New Orleans was 6 to 7 mills per ton per mile, and the cost of transporting freight through the Sault Ste. Marie Canal, in 1905, was .85 mills per ton per mile.

The cost, therefore, on three great waterways was considerably less than 1 mill per ton per mile, as compared with 7.8 mills per ton per mile on the railroads, making the relative cost of transportation by rail and by water 6 to 1 in favor of water transportation.

These scattering illustrations of the difference in cost between water and rail transportation, even coming as they do from high authority, are not entirely satisfactory. But they furnish the indisputable proof of the cheapness of water transportation as compared with that by rail.

THE GOVERNMENT'S DUTY.

Early in the country's history the Government assumed ownership and control over our navigable waters, and today it is the sovereign controling power of all navigable waters. Having assumed this power, it is the duty of the Government to exercise it vigorously for the benefit of all the people. It cannot escape responsibility for, nor dispossess itself of, the slightest control over any navigable water without express permission of Congress, which that body has in the past very properly refused.

A delegation of St. Louisans appeared before the Chairman of the Rivers and Harbors Committee and asked for an annual appropriation of $50,000,000.00. Mr. Burton seemed to think that a large amount. Mr. Edward Goltra, of this city said to him that, if the National Government would give him permission to regulate the river and charge toll for tonnage, he would agree to bond the enterprise for $50,000,000.00 within thirty days. While this statement was probably made in an argumentative way, there is, to my mind, hardly any doubt but that private capital would gladly invest and find it a money-making enterprise. If it would be a good investment for private capital, why would it not be equally good for the Government?

The policy of the Government has been extremely shortsighted and parsimonious. While spending 63 per cent of its total revenue for war and preparations for war, it has only expended 3½ per cent of its total revenues for all of its lakes, rivers and harbors.

IN CASE OF WAR.

With the intention of appealing to the war-like spirit which seems to possess some of our newspapers, the novel argument in favor of the deep waterway has been advanced that it can be used in case of war with Great Britain. By a treaty between the United States and Great Britain, no warships are permitted upon the Great Lakes. After completion of this treaty, however, Great Britain built a deep canal through her territory, connecting it with the lakes, so that, in case of war, she could send her fighting ships into the Great Lakes with expedition, and place our lake cities in jeopardy.

It is contended that we can send all of our smaller vessels through the proposed channel, and then, by removing some of the armor and heavier guns from the larger vessels, they, too, could be sent from the Gulf to the Great Lakes.

Arguments in favor of our ship canal have been based upon questions of transportation and new markets. Its use, however, in time of war probably should not be underestimated.

ENGINEERS OF ABILITY.

The construction and engineering work of the proposed waterway are not matters that a lawyer ought to attempt to discuss before a society of engineers. I know that we have engineers of high ability, perfectly capable of planning and executing this great work, and that its success will depend entirely upon the amount of money placed at their disposal.

Nature has determined the route and furnishes the water. The control of the water and the regulation of the route are matters exclusively within the province of engineers. It is agreed that it is a mistake to make small appropriations at long intervals, as the Mississippi is a mighty, restless power, and washes away each year many thousands of dollars of incomplete and partially-finished work, losing millions of dollars to the Government by its lack of continuous application.

The Ransdell plan calls for a regular appropriation of not less than $50,000,000.00 for all harbors and rivers of the nation, which it is proposed to continue for ten years, making a total sum of $500,000,000.00, distributed over a period of ten years. This will be sufficient to complete, not only a fourteen-foot channel from Chicago to the Gulf, but will amply provide for the Missouri, Ohio and other tributary streams, as well as all other rivers and harbors.

CAN BE BUILT IN TEN YEARS OR LESS.

The main unfavorable argument is the length of time required to complete the work of construction; a vague impression exists that it will be of great benefit to the next generation, but cannot be completed in ours. This is not correct. The channel can be built in less than ten years. As soon as it is known that the Government has entered upon a systematic plan, we will find that private capital will make investments in river craft, and increased river transportation will begin.

OTHER THEORIES.

There is a theory for the control of the headwaters of the Missouri by the erection of dams to hold the water at certain periods of the year and regulate its flow at others.

Another suggestion comes from the Southern States for the building of canals which will take off the surplus water, serving as drainage ditches and for irrigating purposes in Texas. These and many other interesting issues will grow out of the creation of the main channel, but the few minutes I have at my disposal prevent a discussion of them.

The possibilities are so great that they naturally grasp the mind of every intelligent man who gives them consideration.

ONE RESULT.

It would be a pleasure to picture the wharves of St. Louis crowded with foreign vessels, the river filled with craft taking away our products and bringing back the things we need from other climes, to draw upon our imagination and picture St. Louis the great inland city of the world, midway between Chicago and New Orleans, close to the mouths of the great eastern and western branches of the Mississippi, in the center of the continent, surrounded by all the blessings of nature, the business heart of the nation.

HOW WE CAN HELP.

This would be a pleasant task, but the practical thing is for all of us, through our clubs and associations, to discuss and advocate the passage by Congress of suitable appropriations, to demand of our immediate representatives an earnest co-operation in this work, and to secure, by correspondence, the assistance of friends.

Let us give our commendation to those Congressmen and Senators who assist our project and oppose the re-election of those who do not. The ear of a Congressman is acutely sensitive to the demands of his constituents. It is our only duty to arouse the constituents of all our representatives in the Valley.

If this is done, it will be an easy task for them to say to the Congressmen of the eastern seacoast and those of the Pacific: We want our share of the national moneys spent in the Mississippi Valley. We are in favor of improving your harbors and rivers, but we want a fair share of the nation's money spent in that portion of the country where most of the nation's support comes from.

This is not yet a partisan question. Let us strive to keep it from becoming one. Some men, by natural inclination, find difficulties in the way of all progress and magnify them. It should be the especial duty of the Engineers' Club to solve these difficulties.

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